

Application No.: 09/852,931
Amendment dated: November 5, 2003
Reply to Office Action of August 5, 2003

This listing of claims will replace all prior versions and listings of claims in this application:

b.) Listing of Claims

1. (previously amended) An optical line card protection module, comprising:
 - a bench;
 - a user-side interface to an array of user fibers;
 - a device-side interface to an array of device fibers that connect the module to a first device and a second device;
 - a monitoring signal generator on the bench that generates monitoring signals;
 - a monitoring signal detector on the bench that detects the monitoring signals; and
 - a beam switching system on the bench that selectively connects the user fibers to the device fibers for the first device or the device fibers for the second device and the monitoring signal generator and the monitoring signal detector to the device fibers for the second device or the device fibers for the first device, respectively.
2. (original) An optical line card protection module as claimed in claim 1, wherein the user-side interface and the device-side interface comprise separate fiber mounting blocks for respectively mounting fiber endfaces of the user fibers and endfaces of the device fibers to the bench.
3. (original) An optical line card protection module as claimed in claim 1, further comprising a user-side lens array on the bench between fiber endfaces of the user fibers and the beam switching system.
4. (original) An optical line card protection module as claimed in claim 1, further comprising a device-side lens array on the bench between fiber endfaces of the device fibers and the beam switching system.
5. (original) An optical line card protection module as claimed in claim 1, wherein the monitoring signal generator comprises at least one semiconductor device mounted on the bench.

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6. (original) An optical line card protection module as claimed in claim 1, further comprising a generator lens array for directing monitoring signals from the semiconductor device to the beam switching system.
7. (original) An optical line card protection module as claimed in claim 1, further comprising an input tap detector array that is located in a beam path between the user-side interface and the beam switching system for detecting optical signals that are input from the user fibers.
8. (original) An optical line card protection module as claimed in claim 1, further comprising an output tap detector array that is located in a beam path between the user-side interface and the beam switching system for detecting optical signals that are being output to the user fibers.
9. (original) An optical line card protection module as claimed in claim 1, wherein the beam switching system enables input beams from the user-side interface to be transmitted past the beam switching system in a first state and translates the input beams in a second state.
10. (original) An optical line card protection module as claimed in claim 1, wherein the beam switching system enables output beams to the user-side interface to be transmitted past the beam switching system in a first state and translates the output beams in a second state.
11. (original) An optical line card protection module as claimed in claim 1, wherein the beam switching system translates input beams from the user-side interface in a direction that is perpendicular to an axis of the input beams in response to converting between a first state and a second state.
12. (original) An optical line card protection module as claimed in claim 1, wherein the beam switching system translates output beams to the user-side interface in a direction that is perpendicular to an axis of the output beams in response to converting between a first state and a second state.

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13. (original) An optical line card protection module as claimed in claim 1, wherein the beam switching system comprises two opposed tilt mirror arrays.
14. (previously amended) An optical line card protection module, comprising:
 - a bench;
 - a user-side interface to an array of user fibers;
 - a device-side interface to an array of device fibers that connect the module to a primary device and a redundant device;
 - a monitoring signal generator that generates a monitoring signal;
 - a monitoring signal detector that detects the monitoring signal;
 - a beam switching system on the bench that selectively connects the user fibers to the device fibers for the primary device or the device fibers for the redundant device and the monitoring signal generator and the monitoring signal detector to the device fibers for the redundant device or the device fibers for the primary device, respectively; and
 - a user input signal tap detector that is located in a beam path between the user-side interface and the beam switching system for detecting optical signals that are input to the module from the user fibers.
15. (previously amended) An optical line card protection module, comprising:
 - a bench;
 - a user-side interface to an array of user fibers;
 - a device-side interface to an array of device fibers that connect the module to a primary device and a redundant device;
 - a monitoring signal generator that generates a monitoring signal;
 - a monitoring signal detector that detects the monitoring signal;
 - a beam switching system on the bench that selectively connects the user fibers to the device fibers for the primary device or the device fibers for the redundant device and the monitoring signal generator and the monitoring signal detector to the device fibers for the redundant device or the device fibers for the primary device, respectively; and

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a user output signal tap detector that is located in a beam path between the user-side interface and the beam switching system for detecting optical signals that are being output to the user fibers.

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)